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1927. A new *Silene* from the Umpqua National Forest. (W. A. Dayton, joint author). Proc. Biol. Soc. Wash. **42**: 207-208. pl. 8. Aug. 17.
1931. En värdig Linne-ättling. Allsvensk Samling **45**: 6-7, port. Nov. 10. (Obituary sketch of Per Axel Rydberg.)
1933. *Geranium divaricatum* in the United States. RHODORA **34**: 207. Oct.
1934. Botanical notes. RHODORA **36**: 309-312. Sept.
1935. New Arizona plant names. Proc. Biol. Soc. Wash. **48**: 39-44. Feb. 6.
1937. Notes on *Astragalus* (Tournef.) L. Proc. Biol. Soc. Wash. **50**: 17-21. Feb. 23.  
*Polygonum argycoleon* in Arizona. Leaflet W. Bot. **2**: 26. Apr. 19.
1941. A flora of Arizona and New Mexico. (Sister Teresita Kittell, joint-author.) 897 p., 2 pl., map. 23 cm. Catholic Univ. of Amer. Press, Washington.

## A REVISION OF THE VERNAL SPECIES OF HELENIUM (COMPOSITAE)

HOWARD F. L. ROCK

(continued from p. 158)

### 2. *Helenium vernale* Walt.

*Helenium vernale* Walt. Fl. Carol. 210. 1788. Lectotype: Herb. Walt. (BM), presumably collected by Walter at St. John's Parish, Berkely Co., S. Carolina, prior to 1788. Not examined; photographs seen (BM, GH).

*Galardia fimbriata* Michx. Fl. Bor.-Am. **2**: 142. 1803. pro parte.

*Leptopoda Helenium* Nutt. Gen. N. A. Pl. **2**: 174. 1818. Syntype: (PH); Syntype (BM—not seen).

*Leptopoda helenioides* Cass. Dict. Sci. Nat. **26**: 80. 1823. Superfluous name, as an avowed substitute.

*Leptopoda decurrens* MacB. in Ell. Sk. Bot. S. C. & Ga. **2**: 445. 1823. Lectotype: Collected by MacBride, May-July, Fla. (CHARL).

*Leptopoda floridana* Raf. Atlan. Jour. **1** (4): 147. 1832. ? *Nomen dubium*.

*Leptopoda denticulata* Nutt. Trans. Am. Phil. Soc. ser. 2. **7**: 373. 1841. Syntype: Collected in Georgia (PH); Syntype (BM—not seen).

*Helenium Leptopoda* A. Wood, Am. Bot. & Fl. 182. 1870. An inverse combination based on *Leptopoda Helenium* Nutt.

*Helenium Nuttallii* A. Gray, Proc. Am. Acad. Arts & Sci. 9: 204. 1874. Substitute name for *L. Helenium* Nutt., *L. denticulata* Nutt. and *L. decurrens* MacB. in Ell.

*Heleniastrum vernale* (Walt.) O. Ktze. Rev. Gen. (pt. 1) 324. 1891.

*Heleniastrum Helenium* (Nutt.) O. Ktze. Rev. Gen. (pt. 1) 342. 1891.

*Helenium Helenium* (Nutt.) Small, Fl. S. E. U. S. 1292. 1903.

*Helenium decurrens* (MacB.) Moldenke, Bull. Torr. Bot. Club 62: 230. (1935) non Vatke, Ind. Sem. Hort. Berol. (Appendix) 1875.

*Helenium denticulatum* (Nutt.) Moldenke, Phytologia 1: 169. 1935.

Perennial herb, the stem developing from a rosette formed the previous season from the seedling or as an offset from the short caudex; the caudex with coarsely fibrous roots and often with the persistent fibrous leaf bases of prior rosettes. Plant erect, (3.1–) 4.0–6.5 (–7.9) dm. in height, single-stemmed, often occurring in clusters. *Unbranched and usually monocephalous*, occasionally with two heads, very rarely three, and then, when the number of heads is greater than one, the secondary heads arising from buds in the upper leaf axils, formed at a later period than the terminal one and decidedly later-flowering than the primary one and borne on shorter peduncles. Stems glabrous below, sulcate and often anthocyanaceous, becoming striate *but glabrate at most*, above. Peduncle striate, *usually glabrous, occasionally glabrate*, at the base of the involucre, and becoming enlarged and fistulous beneath the involucre. Leaves glabrous, strongly uni-nerved, with the lateral veins obscured, impressed-punctate, resin-atomiferous, becoming reduced in size upwards, but usually not so as to appear quite as scapose-looking as in the preceding species. Radical leaves usually intact and present, (3.0–) 6.5–17.0 (–25.0) cm. in length, (0.4–) 0.6–1.0 (–1.5) cm. in width, being linear-oblongate, elliptic-oblongate to less frequently spatulate or obovate; margin ranging from entire through repand, coarsely and remotely dentate, to *rarely pinnatifid*; apex obtuse, acute, or acuminate; *the basal portion of the leaf tapering to form a relatively long petioloid structure* but enlarging again at the base within the rosette so as to become partially clasping. Cauline leaves similar to the basal leaves, broadly inserted and the mid-cauline ones *decurrent along the stem, the wings extending 2 cm. or more along the stem*, usually from node to node; becoming reduced in size upwards, more remote in disposition upwards, linear-lanceolate and more prominently toothed. Involucre biseriate, the outer series exceeding the inner; phyllaries lanceolate, 7.5–11.0 mm. long, 1.0–1.5 mm. wide at the base, apex acute, glabrate to glabrous, patent initially, becoming withered in age and not particularly reflexed. Heads convex to depressed-hemispherical, 1.4–1.8 cm. in height, 0.7–1.3 cm. broad; receptacle convex to hemispherical. Ray florets neutral; ligules yellow, 1.3–1.7 cm. long, cuneate 3–(4–) fid at the apex, pubescent to glabrate below, resin-atomiferous; achenes abortive and less than the length of the disk achenes.

*Disk yellow*; disk florets fertile; corollas 5-lobed, 5-stamened, (3.0–) 4.0–4.5 (–5.0) mm. in length, glandular-pubescent on the lobes, resin-atomiferous, cylindric to cylindric-campanulate in outline with a short basal tube; pappus scales oblong, elliptic-oblong to elliptic-ob lanceolate, 5–10 in number, 1.5–2.0 (–2.5) mm. in length, *margin erose to lacerate*, apex obtuse though oft-times apiculate to aristillate; achenes 1.0–1.5 mm. long, *glabrous*, resin-atomiferous, columnar to truncate-turbinate.

DISTRIBUTION: Plants of the Atlantic and Gulf Coastal Plain of the Southeastern United States; occurring in wet pine barrens, cut-over pinelands, margins of pine barren ponds, gum-cypress woods, open swamps, borrow pits and ditches, roadside drainage pools and moist flatwoods; from the parishes of Louisiana east of the Mississippi River, through the more coastal counties of Mississippi and Alabama, the northern portions of Florida, and extending northwards in the Coastal Plain of Georgia and South Carolina into Brunswick County, North Carolina. (MAP 1)

REPRESENTATIVE SPECIMENS.—**Louisiana.** Orleans Parish: New Orleans, *Drummond 178* (TEX). St. Tammany Parish: vicinity of Covington, *Arsene 12186* (US). Tangipahoa Parish: 2 m. W. of Hammond, *Rose-Innes & Warnock 725* (GH, TEX). **Mississippi.** Hancock Co.: 8 m. W. of Bay St. Louis, *Rose-Innes & Warnock 21139* (TEX). Harrison Co.: Bay St. Louis, *Demaree 31701* (NCU). Jackson Co.: Ocean Springs, April 1892, *Skehan s.n.* (DUKE). Pearl River Co.: Millard, 17 March 1927, *Reed s.n.* (US). **Alabama.** Baldwin Co.: Point Clear, 2 March 1883, *Mohr s.n.* (US). Escambia Co.: Flomaton, 23 April 1898, *Baker s.n.* (F, US). Mobile Co.: Mobile, 26 April 1898, *Baker s.n.* (NY, POM). **Florida.** Baker Co.: 5 m. N. of McClenny, *Blanton for O'Neil 6461* (US). Bay Co.: bridge beyond Youngstown, 16 March 1937, *West & Arnold s.n.* (FLAS, PH). Bradford Co.: Lawtey, 25 March 1940, *Murrill s.n.* (MO). Calhoun Co.: 5 m. W. of Blountstown, *Jackson 314* (DUKE). Clay Co.: Hibernia, March 1869, *Canby s.n.* (DS, F, GH, MO, NY, PH, US). Duval Co.: wet pine barrens, 16–18 March 1882, *J. D. Smith s.n.* (F, GH, US). Franklin Co.: Apalachicola, *Bilt. Herb. distrib. ex Herb. Chapm. 3983* (GH, MO, NY, US). Holmes Co.: Ponce de Leon, 18 March 1937, *West & Arnold s.n.* (FLAS). Nassau Co.: Callahan, 15 May 1941, *Knight s.n.* (FLAS). Okaloosa Co.: 6 m. NW. of Fort Walton, *Tyson 585* (FLAS). St. Johns Co.: near St. Augustine, March 1884, *Brinton s.n.* (PENN). Walton Co.: near DeFuniack Springs, *Curtiss 6382* (BKL, DS, GH, MIN, MO, NY, UC, US). **Georgia.** Berrien Co.: Alapaha, *Lemon 226* (COLO, FLAS, MIN). Brooks Co.: 6 m. W. of Quitman, *Pyron & McVaugh 2183* (GH). Bullock Co.: near Statesboro, *Harper 2167* (F, GH, MO, NY, US). Calhoun Co.: about 2 m. SE. of Cordrays Pond, *Thorne & Muenscher 8020* (GA). Camden Co.: 12 m. E. of Folkston, *Pyron & McVaugh 1455* (GA). Charlton Co.: about 2 m. W. of Folkston, *J. S. Harper 426* (NY). Dougherty Co.: 'tween Tiokee and Chickasawhatchee creeks, W. of Pretoria, *Thorne & Muenscher 9160* (IA). Early Co.: between Cedar Springs and Safford, *R. M. Harper 3638* (I, NY<sup>b</sup>, MICH, PH, US<sup>b</sup>; not GH, MO, NY<sup>a</sup>, US<sup>a</sup>). Lee Co.: about 1 m. S. of Smithville, *Eyles & Eyles 8033* (NCSC). Lowndes Co.: 3 m. E. of Valdosta, *Quarterman 499* (DUKE). McIntosh Co.: about 7 m. NW. of Darien, *Leeds 2837* (PH). Tift Co.: 8 m. SE. of Tifton, *Shepherd 111829* (DUKE). Toombs Co.: 7 m.

SE. of Lyons, *Cronquist 4690* (GA, GH, NY, US, WS). Ware Co.: Waycross, 18 April 1897, *Williamson s.n.* (PH). Wilcox Co.: in open woods at edge of bog, 2 May 1942, *Duncan 5056* (GA). Worth Co.: Sylvester, *Smith & Schulze 3703* (GA). **South Carolina.** Beaufort Co.: Hardeeville, March 1894, *Williamson s.n.* (PH). Berkeley Co.: 13 m. N. of Wando, 5 m. SSE. of Witherbee, *Duncan 5947* (GA, OKLA). Dorchester Co.: Summerville, 19 April 1897, *Githens s.n.* (PH). Florence Co.: in drainage pool, 5 m. S. of Effingham, Rte. 567, 21 April 1955, *Rock 567* (undistributed). Georgetown Co.: in roadside ditch with standing water 8–16" deep, Jct. Rte. 521 & 17A, between Andrews and Georgetown, 23 April 1955, *Rock 601* (undistributed). Horry Co.: Myrtle Beach, *Weatherby & Griscom 16674* (GH, NY). Orangeburg Co.: Santee, 1 April 1838, (NY). **North Carolina.** Brunswick Co.: growing in open bog and gum-cypress woods, 3.5 m. from Longwood en route to Olympic, 24 April 1955, *Rock 591a* (undistributed).

Through the years the legitimate name for this taxon, *Helenium vernale* Walt., has been consistently misapplied to the preceding species *H. pinnatifidum* (Nutt.) Rydb. A simple check of the characters of the specimen in the Walter Herbarium at the British Museum, however, has shown that this is the species Walter had at hand and that *H. Nuttallii*, under which this species has been masquerading, is clearly a synonym. This misapplication has been reported by the author separately (RHODORA 56: 311–317. 1956) and the details concerning the correct identity of Walter's *H. vernale* are not repeated here. The nomenclature and synonymy relevant to this taxon are self-explanatory once the identity of Walter's *H. vernale* is established, except for that covered in the following discussion.

When Nuttall established the genus *Leptopoda*, he described the only species known up to that time, *Leptopoda Helenium* Nutt. This taxon, however, has proved to be the same as Walter's earlier *Helenium vernale*, of which no mention was made by Nuttall. Shortly thereafter, Elliott (Sk. Bot. S. C. & Ga. 2: 445. 1823) substituted the use of *Leptopoda decurrens* MacB. in Ell. for Nuttall's *L. Helenium*. Elliott justified this action by stating: "As fimbriata, the name applied to one of these plants by Michaux is derived from a generic character applicable to both, and [*Leptopoda*] helenium not appropriate, I have taken the liberty of distinguishing these two species [*L. Helenium* Nutt. and *L. puberula* MacB. in Ell.] by the names given to them by Dr. Macbride; when many years ago he first pointed them out to me as distinct, though hitherto confounded." It was at this time that the second species of *Leptopoda* was

described, the *Leptopoda puberula* referred to in the above quotation. It was at this time, also, that the misapplication of Walter's *Helenium vernale* began. MacBride was convinced that Walter did not see or ever possess any specimens of *L. Helenium* (*L. decurrens*). Although Walter's herbarium has disproven Macbride's conviction, James Macbride contended that the plant Walter called *Helenium vernale* was the same as the species which Macbride was calling *Leptopoda puberula*. Elliott, when he published Macbride's names and descriptions, therefore listed *Helenium vernale* Walt. as a synonym of *Leptopoda puberula* MacB. in Ell. Apparently, however, no one has ever critically examined the specimens of *Helenium* in Walter's herbarium and this misapplication started by Macbride and Elliott has continued and been followed up to the present time.

In 1841, Nuttall elaborated upon his earlier work concerning *Leptopoda* and published the descriptions of three new species of *Leptopoda*. In this later work, Nuttall, moreover, was firm in his use of *Leptopoda Helenium* Nutt. for this species, *Helenium vernale*, and made no mention of either Elliott, Macbride or Walter. One of the three new species published in the work of 1841 was *Leptopoda denticulata* Nutt. Nuttall established this species on the basis that it differed from *L. Helenium* Nutt. in that the leaves were "linear-sublanceolate, denticulate" in *L. denticulata* rather than "leaves entire; radical oblong-lanceolate, denticulate" as in *L. Helenium*. Also, Nuttall held that the "flower" of *L. denticulata* was larger than that of *L. Helenium*. This study has revealed that there is no sensible discontinuity between the two leaf types and the head sizes valued by Nuttall as specific indicators. Indeed, there has never been any serious consideration of *L. denticulata* as a taxon by any taxonomist subsequent to Nuttall. Once this species became better known, the differing leaf forms, their degree of denticulation and the range of head sizes became accepted as part of the inherent variation of the species. However, it is to be noted that the pinnatifid form of the leaf so common in the preceding species, *Helenium pinnatifidum*, is of a relatively low frequency in this species.

Finally, in 1874, when Asa Gray transferred the species of

*Leptopoda* to *Helenium* he gave the name *Helenium Nuttallii* to this species and included within it *L. Helenium* Nutt., *L. denticulata* Nutt. and *L. decurrens* MacB. in Ell.

### 3. *Helenium Drummondii*, nom. nov.<sup>6</sup>

*Leptopoda fimbriata* T. & G. Fl. N. A. 2: 387. (1842) non A. Eaton, Man. Bot. N. A. 275. 1829. Lectotype: Drummond 208, Texas (NY); syntype (TEX). Syntype: Leavenworth, East Florida (NY). Syntype: Leavenworth, Texas (GH).

*Helenium fimbriatum* A. Wood, Am. Bot. & Flor. 182. 1870. ? *nomen ambiguum*.

*Helenium* (*Leptopoda*) *fimbriata* A. Gray in E. Hall, Plantae Texanae 13, (no. 360). 1873. *nomen nudum*.

*Helenium fimbriatum* (Michx.) A. Gray, Proc. Am. Acad. Arts & Sci. 9: 204. 1874. Synonym in part as to *Leptopoda fimbriata* T. & G. but excluding *Galardia fimbriata* Michx.

Perennial herb, the stem developing from a rosette formed the previous season from the seedling or as an offset from the short caudex; the caudex with coarsely fibrous roots and often with the persistent fibrous leaf bases of the prior rosettes. Plant erect, (1.9–) 4.7–5.4 (–6.0) dm. high, single-stemmed, often occurring in clusters, *unbranched and usually monocephalous*, occasionally with two heads and rarely with three. When the number of heads is greater than one, the secondary heads, arising from buds within the leaf axils, are formed at a later period than the terminal one and are decidedly later in flowering than the primary one, as well as being borne on shorter peduncles. Stem glabrous, sulcate and often anthocyanaceous below. Peduncle striate, *lanulose below the involucre*, becoming enlarged and fistulous beneath the involucre. Leaves glabrous, strongly uni-nerved, lateral nerves obscure, impressed-punctate, resinatomiferous, becoming reduced in size and form upwards but usually not so as to appear scapose. Radical leaves usually intact and present, (4.0–) 9.0–20.0 cm. long, 3.5–5.5 (–9.0) mm. wide, being linear-lanceolate, elliptic-lanceolate to less frequently spathulate or oblanceolate; margin ranging from entire to repand, dentate (coarsely and remotely so) to pinnatifid; apex acute to acuminate; *the basal portion of the leaf tapering so as to form a petioloid structure* but expanding again at the base within the rosette so as to become somewhat clasping. Lower cauline leaves similar to the basal leaves, except not petioloid, usually decurrent except for the lowermost. Mid-cauline leaves becoming more reduced with each successive internode, *decurrent along the stem with manifest wings*

<sup>6</sup> Because of an imperfect understanding of the 1952 edition of the International Code of Botanical Nomenclature, the annotation labels placed on specimens of this species read: "*Helenium Drummondii*, sp. nov. in ed." Moreover, at the same a holotype and isotypes were designated. However, Article 72 (1956 ed.) indicates that only a new name is called for and the typification of this name remains the same as that for *Leptopoda fimbriata* T. & G.

that exceed 2 cm. in length. Uppermost leaves reduced to bracteate appendages, not decurrent, frequently toothed, linear-lanceolate, becoming more remote in disposition with increased position upwards. Involucre biseriate, with the outer series exceeding the inner; phyllaries lanceolate, 5.0–9.0 mm. long, 1.0–1.5 mm. wide at the base, apex acute, glabrate to glabrous, patent initially, becoming withered in age with or without becoming reflexed. Heads convex to depressed-hemispherical, 0.9–1.4 (–1.8) cm. high, 1.2–2.2 cm. broad; receptacle convex to hemispherical. Ray florets neutral; ligules yellow, 1.2–2.2 cm. long, cuneate to narrowly cuneate, 3–(4–) fid at the apex, pubescent to glabrate below, resin-atomiferous; achenes abortive and less than the length of the disk achenes. *Disk yellow*; disk floret fertile, pentamerous; corollas 5-lobed, 3–4.0 mm. long, glandular-pubescent on the lobes, resin-atomiferous, cylindric to cylindric-campanulate in outline with a short basal tube; pappus scales more or less oblong, 5–10 in number, 2.0–3.5 mm. long, the *body of the scale being deeply divided, one-half the total length of the scale or more, into many capillary segments, the segments in turn being crinkled or crimped at maturity*, the pappus scales often appearing silvery; *achenes hairy-pubescent on the ribs, the hairs relatively long and rufous, achenes resin-atomiferous, columnar to truncate-turbinate, 1.0–1.5 mm. in length.*

**DISTRIBUTION:** Plants of the Coastal Plain of northeastern Texas and southwestern Louisiana and possibly eastern Florida?; occurring in wet pinelands, swampy prairies, bogs, margins of ponds and wet grasslands. (Map 2)

**REPRESENTATIVE SPECIMENS.—Texas.** Hardin Co.: Sour Lake, *Palmer 13110 & 13114* (BKL, MO, TENN). Harris Co.: Houston, *Hall 360* (F, GH, MO, NY, POM). Houston Co.: E. of Grapeland, *Whitehouse 10634* (SMU). Jasper Co.: 3 m. NE. of Evadale, *Cory 52730* (COLO, DS, GH, NCSC, RS, SMU, US, WS). Jefferson Co.: S. of Beaumont, *Reverchon 3973* (GH, MO, SMU, US). Leon Co.: in edge of swampy ground, Oakwood, 10 May 1942, *E. C. Smith s.n.* (CS). Liberty Co.: Kountze, *Tharp 7302* (TEX). Newton Co.: 30 m. S. of Newton, *Winkler, York & Tharp 47184* (OKL, RM, RSA, TEX, UARK). Tyler Co.: Hyatt Bog, 16 m. S. of Woodville, *Cory 52711* (SMU). **Louisiana.** Calcasieu Parish: 20 m. W. of Lake Charles, 9 April 1936, *Penfound s.n.* (NO). **Florida.** No county indicated or determinable: *Treat s.n.* 1876 (PENN); *Leavenworth s.n.* (NY).

The nomenclatural discussion concerning this species, *Helenium Drummondii*, is in some aspects related to and a continuation of the discussion presented under *Helenium pinnatifidum*. In that discussion, it was pointed out that *Galardia fimbriata* Michx. is a name that was based on two different elements, *Helenium vernale* and *H. pinnatifidum*. It was demonstrated that *Leptopoda fimbriata* T. & G. (1842) is a later homonym of *Leptopoda fimbriata* (Michx.) A. Eaton (1829) and that Torrey and Gray's name is applicable to the present species, *Helenium Drummondii*.

In the year 1870, Alphonso Wood made the combination *Helenium fimbriatum* in *The American Botanist and Florist* at the time when he merged *Leptopoda* with *Helenium*. As stated previously (cf. discussion under *H. pinnatifidum*), Wood gave no direct reference to the basionym for this combination, be it *Galardia fimbriata* Michx. or *Leptopoda fimbriata* T. & G. or indirectly through *Leptopoda fimbriata* (Michx.) A. Eaton. As an indirect indication of the basionym involved, a comparison of the description provided by Wood for *Helenium fimbriatum* can be made with those listed above. On the basis of this comparison, Torrey and Gray's name seems to be indicated as the most probable basionym involved in the new combination made by Wood.

However, there are various other indirect means that can be marshalled against accepting Torrey and Gray's name as the basionym for Wood's combination. First and foremost of these is the very real possibility that Wood was adopting Torrey and Gray's description for Michaux's epithet, especially in view of Torrey and Gray's uncertainty as to the identity of *Galardia fimbriata* Michx. and the curious way in which they phrased the proposal for their own *Leptopoda fimbriata*. This is further borne out by the fact that the uncertainty concerning *Galardia fimbriata* involved only the question of which species of *Leptopoda* to which it applied. That *Galardia fimbriata* did apply to some species of *Leptopoda* has always been an accepted conclusion. Finally, the variation encountered in *Helenium pinnatifidum*—to which *Galardia fimbriata* does apply, in part—is such that it is possible to apply the description given by Wood for *Helenium fimbriatum* to certain specimens of *Helenium pinnatifidum*.

As another indication that *Leptopoda fimbriata* T. & G. may not be the basionym involved in Wood's combination, the fact that Wood did not recognize *Leptopoda fimbriata* T. & G. prior to 1870 is cited. In the *Class-Book of Botany*, first appearing in 1861 and in which Wood included the genus *Leptopoda*, no mention is made of Torrey and Gray's *L. fimbriata*. Various subsequent editions (or issues), although they contain corrections and additions, still did not indicate that Wood recognized *Leptopoda fimbriata* T. & G. Under such circumstances, one can hardly believe that Wood overlooked Torrey and Gray's



name or that it was accidentally left out in printing. It appears, rather, that it was left out deliberately. In the preface to his Class-Books, Wood states:

“From the multiplication of species and genera we have studiously refrained, believing that our books already contain more than Nature will warrant. In the case of any doubtful specimen, which might have served as the basis of a new species, or possibly genus, (had this been our aim), we have always inclined rather to the extension of the limits of some kindred group for its reception, having less apprehension of error in this direction than in the opposite, with all due regard for the permanence of true species. The same principle has compelled us to disallow the claims of many reputed species of the best authors.”<sup>7</sup>

As supplementary circumstantial evidence against the acceptance of Wood's combination as a direct transfer of *Leptopoda fimbriata* T. & G., the description given by Wood for *Helenium fimbriatum* may itself be used. Wood's description is obviously not directly adopted from that provided by Torrey and Gray. Too many particulars are omitted. Rather, a round-about procedure involving the descriptions used by Chapman and Darby seems to be indicated. In addition, if Wood were copying directly from Torrey and Gray, the later homonym *Helenium puberulum* created by Wood to that of DeCandolle would stand out as a glaring error inasmuch as Torrey and Gray clearly list *Helenium puberulum* DC. as a Californian species in their Flora of North America. Finally, the distribution given by Wood for *Helenium fimbriatum* consists solely of “Florida,” whereas Torrey and Gray emphatically indicate Florida and Texas as the distribution of their *Leptopoda fimbriata*. It was Wood's habit to give the entire range of a taxon, whenever it was available, even though this range extended beyond the province of his Floras.

In view of these indirect means, it is possible to raise a reasonable doubt concerning the basionym involved in the combination *Helenium fimbriatum* made by Wood. Moreover, no specimen

<sup>7</sup> Another indication that Wood was not strictly a copyist but did some kind of taxonomic research can be seen in his treatment of the combined genus *Helenium* in the American Botanist and Florist (1870). In this work, Wood revived the pre-Linnean generic name *Heleniastrum* [Mill.] which he used as a sectional epithet for the styliferous-rayed species of *Helenium*. This epithet had not been used by taxonomists since Miller's Gardeners Dictionary of 1739 and was not to be used again after Wood until 1891 when Otto Kuntze revived it as a substitute generic name for *Helenium*.

(either collected, annotated or seen by Wood) has been discovered that would indicate the taxon to which Wood applied the name *Helenium fimbriatum*.

In 1873, Bentham (Gen. Pl. 2 (pt. 1): 414. April), apparently unaware of Wood's work, suggested that *Leptopoda*, along with several other genera, be merged with *Helenium*. Bentham merely listed these genera to be merged, however, and did not make any formal transfer of the species involved. In the same year, Asa Gray published the beginning of a paper (Proc. Am. Acad. Arts & Sci. 8: 631–661. May, 1873) which was "partly in the way of a commentary upon the recent most important revision of the order *Compositae* by Mr. Bentham in the second volume of Bentham and Hooker's *Genera Plantarum*, and partly the re-elaboration of certain genera, or the addition or reformation of species, chiefly such as have fallen in my way while engaged upon this portion of the Flora of California." In the following year (Proc. Am. Acad. Arts & Sci. 9: 187–218. May, 1874), Gray published the continuation and the conclusion of the paper. It is in the later portion (p. 202–205) that Gray presents "An arrangement of the known species" of *Helenium*. At that time, ignoring Wood's previous transfers of 1870, Gray also transferred the species of *Leptopoda* to *Helenium*. In the 1874 paper, Gray refers to "*Helenium fimbriatum* Gray." This is followed by a description and these references: "—Gray in Hall, List, Pl. Tex. no. 360. *Gaillardia fimbriata* Michx. *Leptopoda fimbriata* Torr. & Gray, Fl. 2, p. 387.—"

Hall's *Plantae Texanae*—subtitled "A List of Plants Collected [by Elihu Hall] in eastern Texas in 1872 and Distributed to Subscribers"—was published at Salem, Mass. in 1873. It consists solely of a list of plant collection numbers and their determinations. Presumably, these determinations were made by Asa Gray. Number 360 in this list is "*Helenium* (*Leptopoda*) *fimbriata*" and number 361 is "*Helenium* (*Pseudo-Helenium*) *nudiflorum* Nutt." The parenthetical expression "(*Leptopoda*)" in no. 360 is an ambiguous reference. It could be either a reference to the genus *Leptopoda*, in which case no direct reference is made to either of the two homonyms of *L. fimbriata* as the basionym for this combination by Gray, or it could represent the sectional epithet LEPTOPODA used by Torrey and Gray

in 1842 and which Gray was to use in his 1874 treatment of *Helenium*. Certainly, "(Pseudo-Helenium)" is not a generic reference but represents the sectional name used by Torrey and Gray in *Leptopoda* in 1842.

Considering that Hall's publication with Gray's determinations was published during the interim between the 1873 and 1874 papers of Gray, it appears that these determinations by Gray in Hall's list must necessarily be based on Gray's published work of 1873-74. Under these conditions, it then appears best to consider the name "*Helenium* (*Leptopoda*) *fimbriata*" Gray in Hall, *Plantae Texanae*, to be a *nomen nudum*, inasmuch as a description is lacking and there is no clear indication of a basionym. In that case, Gray's paper of 1874 would constitute the validation of the name used in Hall. According to the synonymy cited by Gray at that time (1874), the epithet *fimbriata* would then be derived from the prior name, *Galardia fimbriata* Michx. and not from the later *Leptopoda fimbriata* T. & G. The citation of Michaux's *Galardia fimbriata* in the synonymy of this species by Gray in 1874 apparently represents a change of opinion by Gray over that which he held with Torrey in 1842, when they cited Michaux with uncertainty and doubt.

On the other hand, however, if one interprets the "(Leptopoda)" reference of Hall's no. 360 to be an implied reference to *Leptopoda fimbriata* T. & G., then the transfer made by Gray would be either a later homonym or a superfluous repetition of the prior *Helenium fimbriatum* of Alphonso Wood, depending on whatever the basionym of Wood's combination is (an indecipherable quality). In any case, whether Gray's combination dates from 1873 or from 1874, it is illegitimate for there is no question that Wood's combination is validly published and legitimate in terms of priority, regardless of how ambiguous it may be.

(To be concluded)